

CLAIMS

1. Isolated DNA encoding TGF- $\beta$  receptor of vertebrate origin or DNA which hybridizes thereto and encodes TGF- $\beta$  receptor of vertebrate origin.
- 5 2. Isolated DNA of Claim 1 wherein the TGF- $\beta$  receptor is TGF- $\beta$  type III receptor or TGF- $\beta$  type II receptor.
3. Isolated DNA of Claim 2 which is of mammalian origin.
- 10 4. Isolated DNA of murine or human origin encoding TGF- $\beta$  type III receptor or DNA which hybridizes thereto.
- 15 5. Isolated DNA of Claim 4 having the nucleotide sequence of Figure 1 or a portion thereof sufficient to encode TGF- $\beta$  type III receptor.
6. Isolated DNA of murine or human origin encoding TGF- $\beta$  type II receptor or DNA which hybridizes thereto.
- 20 7. Isolated DNA of Claim 6 having the nucleotide sequence of Figure 2 or a portion thereof sufficient to encode TGF- $\beta$  type II receptor.
8. Isolated TGF- $\beta$  type III receptor of mammalian origin.

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9. Isolated TGF- $\beta$  type III receptor of Claim 8 having the amino acid sequence of Figure 1 or a substantially similar amino acid sequence.
10. Isolated TGF- $\beta$  type II receptor of mammalian origin.
- 5 11. Isolated TGF- $\beta$  type II receptor of Claim 10 having the amino acid sequence of Figure 3 or a substantially similar amino acid sequence.
12. Recombinant TGF- $\beta$  type III receptor of mammalian origin.
- 10 13. Recombinant TGF- $\beta$  type III receptor of Claim 8 having the amino acid sequence of Figure 1 or a substantially similar amino acid sequence.
14. Recombinant TGF- $\beta$  type II receptor of mammalian origin.
- 15 15. Recombinant TGF- $\beta$  type II receptor of Claim 10 having the amino acid sequence of Figure 4 or a substantially similar amino acid sequence.
16. Soluble TGF- $\beta$  receptor.
17. Soluble TGF- $\beta$  receptor of Claim 16 which is soluble
- 20 TGF- $\beta$  type III receptor.
18. Soluble TGF- $\beta$  type III receptor of Claim 17 in which the amino acid sequence is amino acids 1 through

785, inclusive, of Figure 1 or a substantially similar amino acid sequence.

19. Soluble TGF- $\beta$  receptor of Claim 16 which is soluble TGF- $\beta$  type II receptor.

5 20. Soluble TGF- $\beta$  receptor of Claim 19 in which the amino acid sequence is approximately amino acids 1 through 166, inclusive, of Figure 3, or a substantially similar amino acid sequence.

10 21. An antibody which specifically recognized TGF- $\beta$  type III receptor of mammalian origin.

22. An antibody of Claim 21 which is a monoclonal antibody.

23. An antibody which specifically recognizes soluble TGF- $\beta$  type III receptor of mammalian origin.

15 24. An antibody which specifically recognizes soluble TGF- $\beta$  type II receptor of mammalian origin.

Sub 2 20 25. A method of altering TGF- $\beta$  binding to TGF- $\beta$  type III receptor on the surface of a cell, comprising combining soluble TGF- $\beta$  type III receptor with the cell, under conditions appropriate for binding of the soluble TGF- $\beta$  type III receptor and TGF- $\beta$ .

26. The method of Claim 25 wherein TGF- $\beta$  binding is inhibited.

27. A method of altering TGF- $\beta$  binding to TGF- $\beta$  type II receptor on the surface of a cell, comprising combining soluble TGF- $\beta$  type II receptor with the cell, under conditions appropriate for binding of the soluble TGF- $\beta$  type II receptor and TGF- $\beta$ .
28. The method of Claim 27 wherein TGF- $\beta$  binding is inhibited.
29. A method of altering TGF- $\beta$  binding to TGF- $\beta$  type III receptor on the surface of a cell comprising combining the cell with DNA encoding TGF- $\beta$  type III receptor in an appropriate expression system which expresses TGF- $\beta$  type III receptor, under conditions appropriate for expression of TGF- $\beta$  type III receptor and binding of TGF- $\beta$  with TGF- $\beta$  type III receptor.
30. A method of regulating the effect of TGF- $\beta$  in a mammal, comprising administering to the mammal a TGF- $\beta$  receptor selected from the group consisting of: TGF- $\beta$  type III receptor, TGF- $\beta$  type II receptor, soluble TGF- $\beta$  type III receptor, soluble TGF- $\beta$  type II receptor, TGF- $\beta$  bound to TGF- $\beta$  type III receptor or a combination thereof, in sufficient quantity to alter binding of TGF- $\beta$  to TGF- $\beta$  type III receptor, binding of TGF- $\beta$  to TGF- $\beta$  type II receptor or both.

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